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whatever. Such a thesis is hardly favorable to the view that knowledge of the past is "logically verifiable." In the qualified sense, the proposition, as we have seen, means that we do actually know the past, with the aid of present memory-images and sense-data. But *how* the present existences constitute a true "logical verification" of past existences, the proposition does not explain. (c) Finally, Mr. Dewey tells us, in familiar pragmatistic language, that a belief about the past is "verified or condemned by its consequences." This, however, is another example of the error from which the pragmatist, of all men, should be most free—the confusion of the traits of one temporal phase of experience with those of another. When the consequences of a prior belief arrive, that belief is already "past and gone forever"; and how, at the later moment, we can—except by means of a faith in memory—know even that there *was* a prior belief of which these are the consequences, Mr. Dewey does nothing to make clear.

Considered as historical phenomena, most of the aspects of Professor Dewey's view about judgments of the past which I have here criticized seem to me to be simply manifestations of the working of the old leaven of epistemological idealism, and of the wrong sort of intellectualism, of which pragmatism has not yet purged itself—expressions of an obscure feeling that nothing ought to be treated as "known" which is not immediately given, actually present, totally verified on the spot. For the critical realist, on the contrary, all our knowledge (beyond bare sensory content) is a kind of foreign commerce, a trafficking with lands in which the traffickers do not live, but from which they may continually bring home good store of merchandise to enrich the here-and-now. And like all such traffic, it requires first of all a certain venture of belief, instinctive with most men, deliberate and self-conscious with those who reflect.

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DR. MCTAGGART AND CAUSALITY

MANY different persons compose the public, which thus contains a multitude of minds. Sociologists dispute with one another over the existence of a single public mind that combines this multitude into one. It is convenient to assume, for some purposes, this unitary combination of many individual minds, as any particular mind is composed of many thoughts. It is convenient when so many

members of the multitude think alike that one common mind seems to have one thought. There are such occasions and the public estimate of Dr. McTaggart's *The Nature of Existence* would very probably be one of them. Dr. McTaggart has himself supplied a sentence to express this public estimate. Most people, perhaps even including many professional philosophers, would only see in *The Nature of Existence* an elaborate and unnecessary amplification of the sentence on page 136 which reads: "But things which are unimportant are none the less real." The public adoption of this sentence to characterize the book would not adopt the motive which prompted it. Dr. McTaggart's sympathies center on the word "real," but the public emphasis would fall on the word "unimportant." The unanimous public mind would probably admit, without troubling to inquire further, the possible truth of Dr. McTaggart's opinions, and then decline to discuss them. The writer himself probably only expects to appeal to a few minds who will study the problem of existence without requiring an immediate connection with the interests of practical life. He does hope to derive some insight into questions of practical interest from his discussion of the general nature of the existent (p. 51), but he probably expects the public mind to prefer a more immediate study of the practical to such a long metaphysical detour.

The most practically minded person may feel the fascination of the principle stated on page 87: "when any substance changes, all substances must change." The pen of the astronomer, it has been said, as it records or calculates the motions of the planets, alters these motions by its own movements. The imperceptible effect on a giant planet of the insignificant pen appeals to imagination as a revelation of the sensitiveness of the universe to its most microscopic occurrences. It appeals also to the innate human desire to exert control by suggesting that the slightest human action spreads its influence through society. But the imaginative appeal of theoretically existent but imperceptible and irrelevant influences can not stay the vehement human hunt after effects more patent, more impressive and more palpably enduring. The susceptibilities of the universe of substances to the changes in one of them, as stated by Dr. McTaggart, have too little dramatic flavor to inspire a reformer. There is a suggestion of important possibilities if it is true that Brown's body changes when Smith, after being thinner than Brown, becomes fatter than he. If Smith can change Brown's body by a change in his own body perhaps he can affect Brown's political opinions by altering his own: a vista of entrancing possibility is promptly opened. Dr. McTaggart, however, is thinking of change

in a very practically unimportant sense, though it is very real. When Smith was thinner than Brown, Brown's body was related to Smith's body by being fatter. This relationship generated in Brown's body the quality of being fatter than Smith's. When Smith becomes the fatter of the two Brown's body alters its quality of being fatter than Smith's to the quality of being thinner. The ardent reformer might reflect, as he is faced with this illustration of universal interaction, on his stupidity in reading past page 7. "On the other hand," Dr. McTaggart there remarks in a footnote, "the possibility that it might be raining now, when in point of fact it is not raining, has no *practical* interest for me." The first seven pages should have shown to anybody, the reflecting reformer might well think, that the whole book was devoted to precisely such practically unimportant possibilities.

If the practically minded representative of the public reads paragraphs 30 to 33 he will probably think that the study of "the characteristics which belong to all that exists, or again, which belong to Existence as a whole" (p. 3) promotes peculiarity of thought as well as devotion to practically unimportant possibilities. Any two things, selected from the vast store of the universe, have, he learns, the same number of characteristics, and he may be too contemptuous of the proof to relish its deftness. A poker is hard and long and shining and, it may be supposed, to the north of London. An idea in a mind has corresponding qualities—but it has the quality of being not-hard, of being not-long, of being not-shining and is, presumably, not to the north of London. If the idea is vivid the poker has a corresponding quality of being not-vivid and so, by ascribing to everything every relation or quality, either positively or negatively, any single thing has precisely the same number of characteristics as any other. Since a shiny poker is not only more shining than an unpolished one but also has the quality of possessing a total group of qualities which, because it includes shininess, is different from the group of qualities possessed by the dull poker, since this development of qualities and relations could be indefinitely extended and since a similar unending development of qualities and relations could proceed from any one point of comparison between the poker and any other existent thing the poker has an infinity of characteristics—qualities and relations. The hypothetical single public mind, which can be conveniently substituted for many gasping individuals, will probably marvel at the peculiar preference of the metaphysician for researches which diffuse themselves over unimportant suppositions and very dubious speculations.

Our natural practical instincts incline us to a sharp distinction between mere mechanical aggregates, like a heap of stones, and

organic unities, like a plant or a tiger or a human society. When a handful of stones is removed from the heap it becomes smaller without appearing to be further sensitive to the change in its parts. The whole tiger is more sensitive to the removal of his tail and the loss of its chief sends an emotion through the whole of a human group. We think naturally of tigers and societies as "genuine wholes in which no part nor characteristic is indifferent to any other." A triangle, Professor Bosanquet adds to this definition of "a genuine whole," is imperfectly genuine in this sense because there is some indifference: its angles have the same sizes, however big or small it may be, if it keeps the same shape (*Implication and Linear Inference*, p. 7). For non-metaphysical wisdom the heap of stones is even less sensitive to its parts and less genuinely a whole than the triangle. If we accept hints from Dr. McTaggart we observe a greater sensitiveness in the heap to its parts. If it has as many stones as a neighboring heap before it loses a handful, it alters its quality of being equal to its neighbor to the quality of being less. It may become less than many other heaps which were previously larger than itself and each new relation involves a new quality in the heap. Dr. McTaggart would probably suggest to Professor Bosanquet that the angles of a large triangle do differ from the angles of a triangle which is smaller and has the same shape. The angles in the larger triangle are angles which have the quality of being related to a triangle which is larger than the smaller triangle, and the angles in the smaller triangle, since they are related to a triangle which is smaller than the larger triangle, have a different quality from the angles of the latter. If Dr. McTaggart is right then "all wholes are really organic unities" because "since the whole as a unity is what it is, the parts must be what they are" (*The Nature of Existence*, p. 161). These Hegelian refinements touch a sympathetic chord through the practical crust on our minds. Dr. McTaggart gets the whole universe into an organic unity which is sensitive to all changes in its parts. He seems to turn our ears to Blake as he says "For not one sparrow can suffer, and the whole universe not suffer also" (*Jerusalem*, Ch. 1, XXV, 8).

There is more appeal in Blake's sparrow than in Dr. McTaggart's more bloodless multitude of abstract qualities and relations. Dr. McTaggart realizes that suffering appeals more to our sense of life than does the cold recognition that the pain of a sparrow alters in a regardless passer-by the quality of being near a happy sparrow to the quality of being near a sparrow which suffers. He would doubtless insist on the equal reality of both forms of sensitiveness

in the universal whole without denying the greater importance for practical life of sympathy with suffering. He insists that our customary standards of value determine our customary division of things into biological organisms and beautiful objects, which are organic unities, and into more mechanical aggregates which are not. The decrease in size of a stony heap is only important for special purposes; slight changes in living or beautiful things produce differences which affect our sense of value (p. 161). His deduction from a survey of the less impressive, and apparently very unimportant, modes of sensitiveness in wholes to changes in their parts, that all wholes are organic unities, is a reminder of the disturbance which practical common sense notions may exert on the effort to understand the real nature of the universe.

This lesson may be drawn from *The Nature of Existence* if all else is rejected. The way of philosophical understanding opens out of the way of life because before becoming philosophers we must first live. But it is not merely its continuation. The impression of hopeless irrelevance first made upon our minds by *The Nature of Existence* is the response of men who spontaneously estimate everything by its direct bearing on their lives to a problem which includes them as items in a vaster, universal whole. The notions of relevance and irrelevance imposed upon us by the exigencies of life, which only demand from us knowledge adequate for our primary purposes, may have to give way before the wider demands of knowledge. We do not, in any ordinary relevant sense, alter objects by perceiving them. An apple retains the same shape, color or taste whether it is or is not being looked at. There are differences, however, between the perceived and the unperceived apple which are usually ignored because they are practically irrelevant. When *A* looks at the apple it is cognitively related to him and has the quality of being perceived. It sheds this relation and the quality generated from it when *A* turns away to look at something else. Its characteristics do not diminish, on Dr. McTaggart's doctrine, because it is now unperceived by *A* and has a corresponding negative quality. An exhibitor of pictures need not sharpen his apprehension of their qualities and relations by studying *The Nature of Existence*. Neither he nor his patrons will affect his paintings by merely looking at them in any way relevant to esthetic appreciation: their colors will not fade nor any other of their physical qualities be altered by simple inspection. It is less certain that the epistemologist can say dogmatically: "Knowing is never making. It is just knowing." (Laird, *A Study in Realism*, p. 35.) Since epistemology is wider than exhibiting pictures it may be its duty to

remember that a painting is never the same under inspection as it is in the dark. The contemplating mind appears to common sense to select its object from a world of being which is distinct from, and, in this sense, independent of itself (Alexander, *Space, Time and Deity*, i, 15). If the process of selection determines in the object the quality of being thus selected, the quality of being perceived and many other qualities determined by these two, the serenity of this conclusion is disturbed. The impression of hopeless irrelevance begins to pass into an impression of ultimate and philosophically significant relevancy. The geometer can often come down successfully upon a problem relating to lines and triangles in two dimensions by considering the analogous problem in three dimensions. Perhaps the abstract qualities and relations discussed by Dr. McTaggart may serve the philosopher as the higher dimension serves the geometer. He may be able to descend successfully from the study of the characters of all existents, or of existence as a whole, irrelevant and hopelessly abstract as they may at first appear, upon problems which have been discussed on the tacit assumption of their irrelevance.

By such a descent organic unities may cease to be regarded as intruders into an unorganized world. The epistemologist who supposes his perceived object to be unaffected by his perceptions may, by making his survey more comprehensive, discover more universal interaction than his theories contemplate. The past is not fixed if the coronation of Queen Victoria ceased to be the last British coronation in 1903. (*The Nature of Existence*, p. 87.) Will a persistent exploration of the ultimate characteristics which belong to existence or existents as a whole as such permit a successful descent upon the vexed question of causation? Will "cause" and "effect" obviously disappear or be obviously confirmed under Dr. McTaggart's dialectic? Dr. McTaggart has no doubts and firmly restores the concept of causality which has been dismissed by the anti-causationists of the day. The concept has been a little distorted, though not seriously dragged, during its passage into exile and back, but it does return.

Mr. Bertrand Russell has a favorite device for discrediting the causal relation. He delights in interrupting causal sequences by interventions: if a man is shot immediately after taking a fatal dose of arsenic the dose is deprived of its causal effect (*The Analysis of Mind*, p. 94). This compels a shortening of the time-interval between cause and effect to avoid the intrusion of such interventions which ultimately coalesces them into indistinguishableness. This cup-and-mouth argument strikes hard at the inevitableness of con-

nection which the causal relation implies. Science can get no nearer to the traditional causal law than to say, "*A* is usually followed by *B*" (p. 96). Mr. Russell selects favorable ground for this crusade against causality. "I put my penny in the slot, but before I can draw out my ticket there is an earthquake which upsets the machine and my calculations." Rigid determinations will be less discernible in complex phenomena and amid the stir and fuss of the varied world of events and things it is necessary that "to be sure of the expected effect we must know that there is nothing in the environment to interfere with it." They will be less discernible also because "as soon as we include the environment, the probability of repetition is diminished, until at last, when the whole environment is included, the probability of repetition becomes almost nil" (*Mysticism and Logic*, p. 187). Repetition is not necessary to rigid determinations, though, if it occurs, it assists in their recognition. Obviously, the examination of complex phenomena favors the application of the cup-and-mouth argument because rigid determinations will neither be prominent in repetitions nor lie nakedly in the complexities examined.

The differential equations which supersede spurious causal laws in advanced sciences (p. 194) conceal causality by summarization. Buckle was greatly impressed by the statistical constancies discovered by Queletet. He mentions, among others, the constant annual number of unaddressed letters (*History of Civilization in England*, i, 32). Supposing, to fix ideas, that for every 10,000 people in the British Isles one letter is posted every year without an address, the equation *unaddressed letters* \times 10,000 = *population* represents this statistical constancy. This simple equation, assuming it to be more stringently true than in reality, illustrates the mathematical ignoring of causes. The statistician anticipates the number of unaddressed letters during any year by dividing the number representing the population by 10,000. The mathematical result, as such, is independent of causes, but it is only possible because causes operate. There is a cause for the posting of each unaddressed letter: absence of mind in some instances, hurry in others and many more besides. The mathematical summary drops the causes out, but if they were not it would not be. The choice of the differential equation to confute the pro-causationists is even more effective than the choice of complicated phenomena to conceal causal connections. With the latter the cup-and-mouth argument is needed, but is effective because it is difficult to uncover connections in their nakedness. But it is not needed with the former because differential, or other, equations bury causal connections quite out of sight

in a summary. Bertrand Russell crusades very successfully on his chosen ground but will his conclusion that "The Law of Causality . . . like much that passes muster among philosophers, is a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm" (*Mysticism and Logic*, p. 180) survive a descent upon it from the ultimate characteristics of existents and existence?

Anything which has a quality must be related to that quality in that it possesses it. (*The Nature of Existence*, p. 112.) This change of ground supplies McTaggart with a route of descent into the rigid determinations which Russell so successfully conceals. He discovers the relation of *intrinsic determination* among the ultimate characteristics of existents. "If it is true that, whenever something has the quality *X*, something has the quality *Y*, this involves that, besides the relation between the two propositions 'something has the quality *X*,' and 'something has the quality *Y*,' there is relation between the qualities *X* and *Y*. I propose to call this relation *Intrinsic Determination*" (p. 111). If anything is blue it is spatial (p. 111); if a certain man is a husband, a certain woman must be a wife (p. 112); if anything stands in a relation it has the quality of being a term in that relation (p. 112). There are inevitable or rigid connections which are proof against all interventions and can not be summarized away in a formula or by a differential equation. Two qualities may intrinsically determine one another directly or they may determine one another more indirectly. "The two qualities of Snowdon, being a mountain and being *M* feet high, do extrinsically determine one another. For anything which had not the quality of being today *M* feet high would not be the substance which we call Snowdon" (p. 115). There is no intrinsic determination between being a mountain and being *M* feet high, as there is between being a mountain and spatiality, because a mountain may be any height above 1,000 feet. But since Snowdon is *M* feet high and is a mountain these two qualities are extrinsically co-determinate because of their connection with that particular mountain. "All qualities of a substance extrinsically determine one another" (p. 114): if a quality of a substance changes, its nature changes, and each other of its qualities becomes a member of a different group, though the difference may be slight, of qualities. "All existents are thus bound together in one system of extrinsic determination" (p. 151), but the relation of intrinsic determination bears more directly on causality. The discussion of the peculiar form of *Intrinsic Determination* which is defined by Dr. McTaggart as *determining correspondence* (p. 214) can be avoided in following the descent from *Intrinsic Determination* into causality.

The death of Charles I and his execution seem to preclude any intervention that could separate them or violate their Intrinsic Determination. The execution might have been prevented, and prevented even as the axe descended, but when his head was severed, Charles had to die. We are very close to a discovery of causal connections, for the execution of Charles would be ordinarily regarded as the cause of his death and as inevitably producing it. Fifty years hence, or earlier, surgery may intervene successfully between decapitation and death. This abstract possibility, which could not be disproved, saves the cup-and-mouth argument from defeat at this point: it is not easily defeated on its own ground. Meanwhile, a reasonable argument might run, in our particular part of the universe and pending a possible achievement of surgery: beheading determines death and the two are tied together as cause and effect.

Intervention between antecedent and subsequent is more obviously possible between drinking alcohol and intoxication. A draught of alcohol normally enough to result in drunkenness may leave a drinker who is abnormal or abnormally situated still sober. Determination can be approached more closely by reversing the order earlier-later to the order later-earlier and by taking the qualities more precisely (p. 238). Any man who is drunken with all the characteristics of alcoholic intoxication must have taken alcohol: alcoholic intoxication intrinsically determines drinking alcohol in sufficient quantity. This inversion of the direction of determination qualifies the ordinary conception of causation which contemplates only a forwards determination of effect by cause without a backwards determination of cause by effect. Causation becomes a particular instance of intrinsic determination where the terms are temporally distinguished—the cause being merely the earlier and the effect merely the later. The relative positions of the cause and effect in time alone distinguish causation from other instances of intrinsic determination (p. 227)—the cause exerts no activity on the effect (p. 224). Dr. McTaggart includes in the conception of causation its occurrence as a relation between qualities, since all intrinsic determination is between qualities, though these qualities include relational qualities (pp. 220–221), *i.e.*, qualities of substances which arise directly out of their relations. This version would probably not satisfy all pro-causationists—not Mercier who thought causes entered into permanent phenomena to disturb their tranquillity, as events (*On Causation with a Chapter on Belief*, Ch. 2), and not Lossky, for whom the idea of causal connection implies one event actively producing another (*The Intuitive Basis of*

Knowledge, Duddington's trans. p. 23). Dr. McTaggart also includes in the conception of cause the involvement of general laws (*The Nature of Existence*, p. 154).

Causality thus reduces to a temporal distinction in Intrinsic Determination. Dr. McTaggart's restoration of the concept of causality has obviously involved it in some critical reconstruction. A tie or necessary connection is left between cause and effect, but efficacy or agency is rejected.

Alexander, in one place, describes causation as "the continuous connection in sequence of two events within a substance" (*Space, Time and Deity*, ii, 153). This apparent acquiescence in the extraction of the effective element from the causal sequence is apparently contradicted by a recognition of "the influence of one thought in our minds over another" (ii, 152). He seems to avoid the introduction of efficacy into physical causation: physical causation is the continuous transition of one physical event into another (i, 97), and causality is a relation of continuity between two different motions (i, 279). When he adds that "our power is an instance of causality," that power or necessity is not contained in the conception of causality as a category and that "our awareness of power is but our consciousness of the causal relation between our will and our acts" (i, 291) he seems to acquiesce in the expulsion of efficaciousness from causation. "Self-initiation" results from the addition of "the consciousness of activity" to "simple causality" (ii, 154), minds and external things, as compresent, are in causal relation (ii, 155): he thus seems in sympathy with McTaggart's reduction of this much disputed category to a " . . . modest but pervasive category of causation" (i, 290), for McTaggart takes from the anti-causationist a modest remnant of the originally potent causal sequence, though he is less certain about its pervasiveness than Alexander—causality may not be universal (*The Nature of Existence*, p. 231).

The fortunes of the concept of causality may be compared to the fortunes of the notion that chemical elements may be a mixture of atoms with different atomic weights. The statistical method of enquiry imposed upon science for many years, obliging it to study reactions involving large groups of atoms, prevented the detection of the different atoms constituting these groups—of isotopes. Crookes thought he had found an element whose atoms differed in weight because he obtained different spectra from sifted groups of these atoms. His "meta-elements," however, were finally identified with real elements and elements again assumed their apparent atomic homogeneity. The more effective methods of analysis of the present

century have established the existence of substances with practically identical chemical and spectroscopic qualities but different atomic weights (Aston, *Isotopes*, Ch. 1). When causal sequences are grossly taken, the threads of causal or determinate connection are concealed. These connections were suspected and their possibility haunted the mind. But phenomena taken in the gross as causes and effects are liable to the interventions that the cup-and-mouth argument employs so effectively. Statistical resumés in mathematical formulæ still more effectively conceal these threads of determination that run through the complexities of the world.

By singling out, with more delicate analysis, the fundamental connections in the simple final characters of the world, Dr. McTaggart reveals Intrinsic Determination containing temporal distinctions. He reveals causal connections threading together the complexities of empirical existents. The bunches of causal connections, of temporally distinguishable Intrinsic Determinations, that represent the gross, complex causes and effects of empirical life, often have no rigid connection though they may present themselves in very uniform sequence. They are often sequent by the general permission of the universe—the business man regularly catching his morning train because the ground does not open to swallow him, and the human race continuing to exist because the atmosphere is not swept off into space. But the conviction implanted in the human mind by the reasonably trustworthy regularity in its experience seems to be justified, though by more ideal causal relations than the first causal relations it affirms. Gross rigid connections are less rigid than they first appear and many sequences are broken or understood to be breakable. None the less, the degree of regularity in the world, which is very great, seems to depend upon fundamental determinations which are often temporally connected or causal.

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BOOK REVIEWS

Senescence. G. STANLEY HALL. New York: D. Appleton and Co. 1922. Pp. xxvii + 518.

In this 500-page volume, with neither index nor bibliography, but with a well-analyzed table of contents, Dr. Hall gives a running account of "how the ignorant and learned, the child, the adult and the old, savage and civilized man, pagans and Christians, the ancient and the modern world, the representatives of various sciences,